MULTI-ANTENNA TRANSMISSION FOR SPATIAL DIVISION MULTIPLE ACCESS

ABSTRACT

An uplink channel response matrix is obtained for each terminal and decomposed to obtain a steering vector used by the terminal to transmit on the uplink. An "effective" uplink channel response vector is formed for each terminal based on its steering vector and its channel response matrix. Multiple sets of terminals are evaluated based on their effective channel response vectors to determine the best set (e.g., with highest overall throughput) for uplink transmission. Each selected terminal performs spatial processing on its data symbol stream with its steering vector and transmits its spatially processed data symbol stream to an access point. The multiple selected terminals simultaneously transmit their data symbol streams via their respective MIMO channels to the access point. The access point performs receiver spatial processing on its received symbol streams in accordance with a receiver spatial processing technique to recover the data symbol streams transmitted by the selected terminals.